Answer on Question #78900 – Math – Calculus
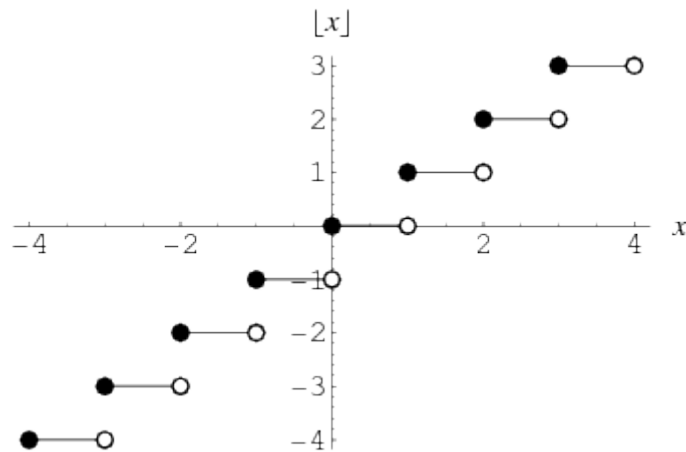
Question

The greatest integer function is continuous on R. Statement is true or false? Give reasons for your answers.

Solution

The greatest integer function, also called the floor function $\lfloor x \rfloor$, is not continuous on R, since it is discontinuous at integer points. For example, $\lfloor x \rfloor = 0$ for $x \in [0,1)$ and $\lfloor x \rfloor = 1$ for $[1,2)$, thus

$$\lim_{x \to 1^-} \lfloor x \rfloor \neq \lim_{x \to 1^+} \lfloor x \rfloor$$

Answer: false.